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EP-A- 0 140 135	EP-A- 0 173 068
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Description

This invention relates to products for absorbing body fluids and, in particular, to liners for sanitary napkins.

In general, sanitary napkins and other absorbent products have an absorbent core comprising one or more layers of fluid absorbent material such as wood pulp, rayon, gauze, tissue or the like, and in some cases synthetic hydrophilic material such as hydrophilic polyurethane foam may be used. The hydrophilic material is generally provided in the form of a pad, which may have a rectangular or somewhat oval shape. To enhance the sense of comfort for the user, absorbent products also generally employ a cover material or facing which covers the body-facing surface of the hydrophilic material. The cover is generally made of hydrophobic materials so that it will not be stained by or absorb fluids. The purpose of the cover is to structurally contain the loosely packed absorbent material and to protect the body from direct contact with the absorbent pad. To protect the clothing of the user from being stained or wetted by the body fluids absorbed by the hydrophilic material, the pad is generally backed by a body fluid impervious barrier sheet. The absorbent product is positioned on the body with the hydrophilic material facing the body and the fluid impervious barrier facing the clothing of the user. To retain the product in place during use, pressure-sensitive adhesive is conventionally located on the outer surface of the fluid impervious barrier so that the product may be adhered to the undergarment of the user (as described for example in EP-A-0 106 473 or FR-A-2 350 830).

An ideal sanitary napkin should exhibit at least two favorable characteristics. One is a fast fluid absorbency rate, or rapid fluid take-up. At the moment when body fluids contact the cover, the design and materials of the napkin should be such that rapid transmission of the fluids through the cover to the underlying pad is promoted. The fluids should be transmitted to the pad remote from the cover and the body area it contacts as quickly as possible.

A second desirable characteristic is low rewettability, or fluid strikeback. Once a sanitary napkin has absorbed body fluids, the materials and construction of the napkin should be such that the fluids remain within the absorbent core, and are not retransmitted back through the cover to contact the body of the user. A napkin with a low rewettability characteristic will remain comfortable during extended periods of use, even after absorbing a significant amount of body fluids.

A third characteristic of varying necessity is the ability of the product to retain a large volume of fluid. The need of the user for this characteristic may vary from day to day, or even from hour to hour. During times of light flow or between menstrual periods, a user may need only minimal protection, and hence may prefer to use one of the commercially available thin, protective absorbent napkins, such as that described in U.S. Patent 4,518,451. At such times the thin napkin can provide adequate protection against the soiling of undergarments, while affording a high degree of comfort and a very low profile under clothing.

At other times, however, a user may require a bulkier, more substantial napkin which is capable of absorbing significant amounts of fluid. Finally, there can be times when the user's needs may be variable or uncertain. At those times a user may initially employ a thin napkin, but may need to carry one of the bulkier, more substantial napkins in reserve.

GB-A-2 107 991 for example discloses a sanitary napkin for facilitating protection against menstrual flow whether light or severe which comprises an absorbent pad assembly, a wrapper, mounting means on the bottom side of the absorbent pad, adhesive means on the mounting means and a peelable waterproof sheet adhesively removably secured to the mounting means, and an additional absorbent pad adhesively secured thereto to afford an assembly of increased absorbent capacity.

In this napkin the two parts of the assembly are similar, both parts being designed to absorb fluid, and the wrapper is of gauze or cheese-cloth. However, this napkin assembly is rather bulky and therefore not always convenient.

It would be desirable, then, for a user to carry a thinner, more convenient product which may be used to supplement a thin napkin when the need arises.

Object of the present invention is to provide a thin sanitary napkin liner which may be used in conjunction with another sanitary napkin when the need arises, especially when the user's menstrual flow is variable or uncertain.

This object is achieved by the sanitary napkin liner as claimed in claim 1. Preferred embodiments are subject-matter of the dependent claims.

In accordance with the principles of the present invention, a sanitary napkin pad liner is provided which may be used in conjunction with any other sanitary napkin. A preferred embodiment of the present invention includes a non-wettable, fluid permeable cover of hydrophobic material. The cover is embossed or laminated to a layer of an absorbent nonwoven material. Located on the napkin-facing side of the nonwoven

material is a pressure sensitive adhesive which is sufficient to maintain good contact between the nonwoven material and the sanitary napkin to which it is designed to be adhered. The adhesive area is minimized and selectively located so as to present an insubstantial barrier to fluid transmission. A release strip is placed over the adhesive to protect it from contamination and inadvertent adhesion prior to use.

In a most preferred embodiment, the sanitary napkin pad liner of the present invention includes an embossed pattern on the cover surface. Embodiments of the present invention, when used with a conventional sanitary napkin, have been found to significantly increase the absorbency rate while providing a decrease in fluid strikeback as compared with the conventional sanitary napkin alone.

In the drawings:

- FIGURE 1 is a perspective view of a sanitary napkin pad liner constructed in accordance with the principles of the present invention showing both major surfaces of the liner;
- FIGURE 2a is a cross-sectional view of a sanitary napkin pad liner constructed in accordance with the principles of the present invention;
- FIGURE 2b is a cross-sectional view of the sanitary napkin pad liner of FIGURE 1, taken along lines 2-2 thereof;
- FIGURES 3a-3c illustrate various embossing patterns suitable for use by the liner of the present invention; and
- FIGURE 4 illustrates a technique for embossing a sanitary napkin pad liner of the present invention with a central channel.

Referring to FIGURE 1, a sanitary napkin pad liner constructed in accordance with the principles of the present invention is shown. The liner comprises a hydrophilic cover 12 embossed to a high bulk absorbent nonwoven fabric 14. In a preferred embodiment the cover 12 is a coextruded apertured film of two polymeric materials. The outer, body contacting layer comprises essentially linear low density polyethylene, and the inner, fabric contacting layer comprises essentially an ethylene-vinyl acetate (EVA) copolymer. Both layers contain other additives, as described in U.S. patent application serial number 840,290, filed March 14, 1986. A preferred cover material has an average open area of about 42%, a thickness of about 0.114 mm (4.5 mils), and a basis weight of about 33.91 g/m² (one oz./yd.²). This cover material is preferred for the ability to achieve heat sealing by melting the inner EVA layer to its melting point, which does not cause the polyethylene layer to melt. The unmelted polyethylene layer thereby maintains the integrity of the film and its apertures during a heat sealing process.

A preferred material for the absorbent nonwoven fabric 14 is a low density, thermally bonded nonwoven fabric comprising a mixture of absorbent fibers, non-wettable polymeric fibers, and conjugate fibers. The absorbent fibers may be wood pulp or other cellulosic fibers which may be treated to enhance absorbency. Suitable conjugate fibers comprise a fiber of a polyester core surrounded by a sheath of polyethylene, and suitable non-wettable polymeric fibers comprise polyester. A highly satisfactory absorbent fabric is provided by a thermally bonded absorbent fabric comprising 44% by weight of wood pulp fibers, 43% by weight of conjugate fibers having a staple length of 3.8 cm and a denier of 3.0, and 13% by weight of polyester fibers having a staple length of approximately 5.08 cm (2 in.) and a denier of 15. The fabric is stabilized by passing hot air through the fibers and thereby melting the polyethylene sheaths of the conjugate fibers, which bonds the fabric together upon cooling. Thus it is seen that the conjugate fibers provide integrity for the fabric, the wood pulp provides the desired absorbency, and the polyester fibers maintain the loft of the fabric and its fluid transmitting capillaries between fibers when the wood pulp is saturated with fluid.

Preferably, the layer 14 of absorbent fabric comprises two layers 14 and 15 of a 67.81 g/m² (2.0 oz./yd.²) fabric, as shown in the cross-sectional views of FIGURES 2a and 2b. The two layers are in intimate contact with each other so as to provide a continuous capillary path between the cover 14 and the conventional napkin to which the pad liner is attached. The contact between the two layers and the cover is enhanced and maintained through bonding as described subsequently.

In the embodiment of FIGURE 1, the cover material is trimmed flush with the ends of the absorbent fabric 14 at the longitudinal ends of the liner. The cover material at the longitudinal sides 11 and 13 of the liner is folded around the sides of the liner and extends slightly onto the underside of the absorbent fabric. Along the edges of the cover material on the underside of the liner are two lines 16 and 18 of a highly aggressive pressure sensitive adhesive, such as Fuller 6680 hot melt adhesive. These positioning adhesive lines provide a means for attaching the pad liner to a conventional sanitary napkin. The adhesive lines should be narrow (i.e., 0.635 cm (0.25 inches) or less in width), since they represent a barrier to fluid passing through the pad liner to the underlying sanitary napkin. Preferably the adhesive lines extend in broken or unbroken lines along nearly the entire length of the pad liner, so that intimate contact will be maintained between the absorbent fabric 14 and the face of the underlying sanitary napkin, thereby ensuring good fluid transmissivity.

Covering the adhesive lines is a protective release strip 20 which is provided to protect the adhesive lines from contamination and unintended adhesion prior to use. A particularly useful material is a semibleached kraft paper, the adhesive contacting side of which has been silicone treated to provide easy release from the adhesive lines 16 and 18.

5 The napkin pad liner of FIGURE 1 is embossed along nearly the entire length of the center of the napkin to form a central channel 22. In a constructed embodiment the central channel 22 had a width of 0.635 cm (0.25 inches). The embossed channel not only maintains the integrity of the liner by embossing the cover and absorbent fabric layers together, but it also provides enhanced rapid fluid absorbency and low rewettability characteristics. As compared with other embossing patterns, discussed below, the central
10 channel enhances absorbency by directing rapid deposits of fluid along the channel, from which the fluid is quickly transmitted through the liner. This minimizes fluid build-up at a particular region of the liner and a resultant deposit of fluid in only a limited region of the underlying sanitary napkin. The central channel also minimizes the possibility of fluid transmission laterally to the sides 11, 13 of the liner.

A constructed embodiment of the liner of FIGURE 1 measured 4.572 cm (1.8 inches) wide by 19.304
15 cm (7.6 inches) long. These dimensions were chosen so that the liner was sized to correspond with the absorbent face dimensions of most commercially available sanitary napkins.

FIGURES 2a and 2b show cross-sectional views of two napkin pad liners of the present invention. In these FIGURES, the cover and absorbent fabric layers are shown separated for clarity of illustration; it should be understood that the separation of materials does not occur in the embossed liner. In FIGURE 2a,
20 the cover 12 and absorbent fabric layers 14 and 15 are all of substantially the same width. The longitudinal edges 11, 13 of the liner are sealed by thermal bonding, as indicated at 24 and 26. The preferred materials readily afford this construction technique, as the EVA layer of the cover 14 melts and bonds to the conjugate fibers of the absorbent fabric. FIGURE 2b is a cross-sectional representation of the FIGURE 1 embodiment, in which the cover 14 wraps over the longitudinal edges 11 and 13 of the liner. It should also
25 be noted that when the hot melt adhesive lines 16 and 18 are applied along the edges of the cover material, the adhesive will pass through the apertures of the cover 14 and adhere the cover edges to the absorbent fabric 14. Thus, the absorbent fabric is securely enveloped by the cover.

FIGURES 3a, 3b, and 3c illustrate alternative embossing patterns suitable for use in a napkin pad liner of the present invention. FIGURE 3a illustrates a liner with an evenly distributed embossed snowflake
30 pattern. The pattern is embossed in the manner shown in U.S. Patent 4,518,451, with the snowflakes spaced from each other approximately in 1.27 cm (half-inch) spacing. FIGURE 3a shows only portions of the embossing; in practice, the pattern covers the entire liner in an even distribution. The snowflake pattern provides depressions in which body fluids may collect for rapid transmission through the liner.

FIGURE 3b illustrates an hourglass-shaped embossing, with the area of the liner surrounding the
35 hourglass embossing containing the snowflake embossing. The unembossed area within the hourglass channel maintains a high loft for rapid absorbency of body fluids, unimpeded by thermally compressed and melted areas resulting from embossing. Undesired lateral transmission of body fluids is retarded by the surrounding hourglass channel.

FIGURE 3c illustrates the use of two 0.635 cm (quarter-inch) embossed channels extending along
40 opposite sides of the longitudinal center line of the liner.

Embodiments using these three embossing patterns and the central channel of FIGURE 1 were all constructed and tested with conventional sanitary napkins for absorption time and rewet capacity. While all embossing patterns were found to enhance these characteristics, particularly absorption time, the greatest improvement was provided by the central channel with its longitudinal fluid distribution property.

45 The embodiment of FIGURE 1 with its central channel was constructed and tested with several commercial sanitary napkins to demonstrate the improved performance provided by the present invention. Table A shows these test results. The test results are a summary of several individual tests of each napkin or napkin and liner combination. In each case, the napkin pad liner was attached in the manner of its intended use, which is to align the liner with the face of the napkin and secure it to the napkin with the lines
50 of adhesive. The napkin, or the napkin and liner combination, was then saturated by depositing 15 cm³ of synthetic menstrual fluid on the upward facing cover of the napkin or combination. The time required for the tested item to absorb the fluid was noted and recorded as a 15 cm³ absorption time. The saturated item was then covered with tissue of a known weight and a plexiglas plate, and a pressure 37.93 mbar (0.55 lbs./in.²) was applied to the plate for approximately 3 minutes to induce rewet. The plate was removed and
55 the tissue weighed to determine the amount of fluid which was retransmitted through the cover and absorbed by the tissue. This fluid weight was recorded as the 15 cm³ rewet amount in grams. The test results of Table A show a significant improvement in fluid absorbency time and in rewet values provided by the combinations of the commercial napkins and the liner of the present invention as compared with these

properties of the commercial napkins alone.

Table A

Rewet Product/Combination	15 cm ³ Absorption Time (sec.)	15 cm ³ (grams)
SURE & NATURAL® Napkin alone	17.4	3.8
SURE & NATURAL® Napkin/Liner	8.6	2.3
New Freedom® Thins napkin alone	58.1	5.2
New Freedom® Thins napkin/Liner	11.9	2.5
Tampax Maxithins® Napkin alone	11.7	3.2
Tampax Maxithins® Napkin/Liner	7.7	0.6

The foregoing test results demonstrate that, since the napkin pad liner of the present invention improves the absorbency rate for commercially available sanitary napkins, it is expected that a user will experience a reduced incidence of failure. This is because one mechanism of napkin failure is a rapid deposition of fluid at a rate greater than the rate at which the napkin can absorb the fluid. When this occurs, the fluid can puddle on the napkin surface and flow laterally beyond the sides of the napkin face before it can be absorbed. The napkin pad liner of the present invention improves the rate of absorbency, thereby reducing the instances of failure by this mechanism.

Second, because the napkin pad liner of the present invention reduces rewet, the user should stay drier during use. The napkin pad liner acts to keep a greater amount of the absorbed fluid away from the surface of the liner cover, and away from the user's body. Additionally, the preferred apertured film cover provides a cleaner appearance after the liner is used than does the cover of many commercially available napkins.

Third, a distinct advantage of the napkin pad liner of the present invention is that a user can select when to use it. For instance, the user may elect to use the liner with her normal sanitary napkin during heavy flow days, while dispensing with the liner during light flow days when a rapid absorbency rate may not be required. Furthermore, the thin liner may be conveniently carried by the user in a pocket or purse.

FIGURE 4 illustrates a technique for embossing the central channel 22 in the napkin pad liner of FIGURE 1. In FIGURE 4, an embossing roller 40 is shown in cross-section with a central raised area 42. The embossing roller 40 opposes a smooth anvil roller 42 with a nip 44 therebetween. Positioned between the rollers and within the nip is the napkin pad liner 10. The two rollers are adjustably spring loaded so as to urge them together and close the nip 44. By virtue of the spring loading the two rollers are urged together, and are separated by a distance corresponding to the resistance to compressive forces of the liner materials. In the nip area, the liner is compressed to its limiting value, thereby forming the central channel 22. The embossing process may be conducted using an embossing roller surface temperature in the typical range of 93°-121° C., a set gap between the anvil and embossing rollers of about 0.0025 cm., and an embossing pressure in the nip area in excess of 89.29 kN/m (500 lbs./linear inch).

Claims

1. A napkin liner (10) for use in conjunction with a sanitary protection product comprising: a fluid permeable cover (12) located on the body-facing side of the liner (10); a layer of absorbent material (14,15); adhesive means (16,18), located on the sanitary protection product facing side of the liner, for attaching the liner (10) to an underlying sanitary protection product; and release strip means (20) for covering the adhesive means (16,18) to prevent inadvertent adhesion of the liner prior to use, characterized in that said cover (12) consists of a coextruded apertured film of two polymeric hydrophobic materials, said layer of absorbent material (14,15) comprises thin high bulk absorbent material is laminated to said cover (12) and is adapted for transmitting body fluids which have passed the cover (12) to said underlying sanitary protection product, said adhesive means (16,18) is such that the adhesive area is minimized and selectively located so as to present an insubstantial barrier to the transmission of body fluids through the liner (10) to the underlying sanitary protection product.
2. The napkin liner of Claim 1, wherein said liner is embossed with a pattern.

3. The napkin liner of Claim 2, wherein said embossed pattern comprises a central, longitudinal channel.
4. The napkin liner of Claim 2, wherein said embossed pattern comprises a snowflake-like pattern evenly distributed over the surface of said cover.
- 5 5. The napkin liner of Claim 2, wherein said embossed pattern comprises an hourglass-shaped channel.
6. The napkin liner of Claim 2, wherein said embossed pattern comprises two longitudinal channels respectively offset on either side of the longitudinal center line of said liner.
- 10 7. The napkin liner of Claim 1, wherein said adhesive means comprises two lines of pressure-sensitive adhesive located along the longitudinal edges of said layer of absorbent material so as to pose a relatively insubstantial barrier to the transmission of body fluids through the center of said liner.
- 15 8. The napkin liner of Claim 7, wherein said adhesive lines are 1.27 cm (one-half inch) in width or less so as to pose a relatively insubstantial barrier to the transmission of body fluids through the center of said liner.
- 20 9. The napkin liner of Claim 1, wherein the longitudinal edges of said cover material overwrap the longitudinal sides of said liner and the longitudinal edges of the sanitary protection product facing side of said layer of absorbent material; and
wherein said adhesive means comprises two lines of pressure sensitive adhesive located along the overwrapped longitudinal edges of said cover material on the sanitary protection product facing side of said layer of absorbent material.
- 25 10. The napkin liner of Claim 1, wherein said cover material comprises a thermally bondable material and said thin layer includes thermally bondable fibers,
wherein said cover is thermally bonded to said thin layer about the periphery of said liner.

30 Patentansprüche

1. Hygienische Slipeinlage (10) zur Verwendung in Kombination mit einem hygienischen Schutzprodukt, umfassend:
 - 35 - eine für Flüssigkeit durchlässige Deckschicht (12) auf der dem Körper zugewandten Seite der Einlage (10),
 - eine Schicht aus absorbierendem Material (14, 15),
 - ein Klebmittel (16, 18) auf der dem hygienischen Schutzprodukt zugewandten Seite der Einlage zum Befestigen der Einlage (10) an dem darunter liegenden hygienischen Schutzprodukt, und
 - 40 - einen abziehbaren Streifen (20) zum Bedecken des Klebmittels (16, 18), um ein unbeabsichtigtes Haften der Einlage vor der Verwendung zu verhindern, dadurch gekennzeichnet, daß
 - die genannte Deckschicht (12) aus einem coextrudierten, mit Löchern versehenen Film aus zwei polymeren, hydrophoben Materialien besteht,
 - 45 - die genannte Schicht aus absorbierendem Material (14, 15) ein dünnes, absorbierendes Material mit großem Volumen enthält, an die genannte Deckschicht (12) laminiert und so angepaßt ist, daß sie die Körperflüssigkeiten, die durch die Deckschicht (12) gegangen sind, zu dem genannten, darunter liegenden Schutzprodukt weiterleitet,
 - das genannte Klebmittel (16, 18) so ist, daß die Klebfläche möglichst gering ist und durch sorgfältige Auswahl so angeordnet ist, daß sie kein wesentliches Hindernis für das Weiterleiten
 - 50 der Körperflüssigkeiten durch die Einlage (10) zu dem darunter liegenden hygienischen Schutzprodukt vorhanden ist.
2. Hygienische Slipeinlage nach Anspruch 1, bei der die genannte Einlage mit einem Muster geprägt ist.
- 55 3. Hygienische Slipeinlage nach Anspruch 2, bei der das genannte Muster einen mittleren Längskanal umfaßt.
4. Hygienische Slipeinlage nach Anspruch 2, bei der das genannte Muster ein schneeflocken-ähnliches

Muster umfaßt, das gleichmäßig über die Oberfläche der genannten Deckschicht verteilt ist.

- 5 5. Hygienische Slipeinlage nach Anspruch 2, bei der das genannte Muster einen Kanal in Form eines Uhrglases umfaßt.
6. Hygienische Slipeinlage nach Anspruch 2, bei der das genannte Muster zwei Längskanäle umfaßt, die beiderseits der Mittellängslinie der genannten Einlage angeordnet sind.
- 10 7. Hygienische Slipeinlage nach Anspruch 1, bei der das genannte Klebmittel zwei Linien aus druckempfindlichem Klebstoff umfaßt, die entlang der Längsränder der genannten Schicht aus absorbierendem Material so angeordnet sind, daß sie kein wesentliches Hindernis für das Weiterleiten der Körperflüssigkeiten durch die Mitte der genannten Einlage darstellen.
- 15 8. Hygienische Slipeinlage nach Anspruch 2, bei der die genannten Klebmittel-Linien 1,27 cm (1/2 Inch) oder weniger breit sind, so daß sie kein wesentliches Hindernis für das Weiterleiten der Körperflüssigkeiten durch die Mitte der genannten Einlage darstellen.
- 20 9. Hygienische Slipeinlage nach Anspruch 1, bei der die Längsränder des genannten Deckschicht-Materials die Längsseiten der genannten Einlage und die Längsränder der dem genannten hygienischen Schutzprodukt zugewandten Seite der genannten Schicht aus absorbierendem Material überlappen und bedecken, und bei der das genannte Klebmittel zwei Linien des druckempfindlichen Klebstoffs umfaßt, die entlang der umgelegten Längsränder der genannten Deckschicht auf der dem genannten hygienischen Schutzprodukt zugewandten Seite der genannten Schicht aus absorbierendem Material angeordnet sind.
- 25 10. Hygienische Slipeinlage nach Anspruch 1, bei der das genannte Deckschicht-Material ein thermisch verfestigbares Material umfaßt und die genannte dünne Schicht thermisch verfestigbare Fasern umfaßt, wobei die genannte Deckschicht thermisch an die genannte dünne Schicht am Umfang der genannten Einlage gebunden ist.

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Revendications

- 35 1. Protection de serviette hygiénique (10) pouvant être utilisée en lien avec un produit de protection sanitaire, comprenant :
 une feuille perméable aux fluides (12) située sur le côté faisant face au corps de la protection (10) ;
 une couche de matériau absorbant (14, 15) ;
 des moyens adhésifs (16, 18) situés sur le côté de la protection faisant face au produit de protection sanitaire, afin de fixer la protection (10) à un produit de protection sanitaire sous-jacent ; et
 des moyens de bandes pouvant être retirés (20) pour recouvrir les moyens adhésifs (16, 18) afin
 40 d'empêcher l'adhérence non prévue de la protection avant l'utilisation,
 caractérisée en ce que
 ladite feuille (12) est composée d'un film perforé co-extrudé de deux matériaux polymères hydrophobes,
 ladite couche de matériau absorbant (14, 15) comprend du matériau absorbant mince et à forte
 45 absorption , est laminée sur ladite feuille (12) et est adaptée pour transmettre les fluides d'origine corporelle ayant traversé la feuille (12) vers ledit produit de protection sanitaire sous-jacent,
 lesdits moyens adhésifs (16,18) étant tels que la zone adhésive est réduite et située à un endroit sélectionné afin de fournir une barrière relativement infranchissable à la transmission de fluides d'origine corporelle au travers de la protection (10) vers le produit de protection sanitaire sous-jacent.
- 50 2. La protection de serviette hygiénique selon la Revendication 1, dans laquelle ladite protection est gaufrée avec un motif.
3. La protection de serviette hygiénique selon la Revendication 2, dans laquelle ledit motif gaufré
 55 comprend une rainure centrale longitudinale.
4. La protection de serviette hygiénique selon la Revendication 2, dans laquelle ledit motif gaufré comprend un motif semblable à un flocon de neige réparti de façon uniforme sur la surface de ladite

protection.

5. La protection de serviette hygiénique selon la Revendication 2, dans laquelle ledit motif gaufré comprend une rainure concave.

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6. La protection de serviette hygiénique selon la Revendication 2, dans laquelle ledit motif gaufré comprend deux rainures longitudinales respectivement décalées sur l'un ou l'autre des côtés de la ligne centrale longitudinale de ladite protection.

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7. La protection de serviette hygiénique selon la Revendication 1, dans laquelle lesdits moyens adhésifs comprennent deux lignes d'adhésif sensible à la pression situées le long des bords longitudinaux de ladite couche de matériau absorbant afin de créer une barrière relativement infranchissable à la transmission des fluides d'origine corporelle au travers du centre de ladite protection.

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8. La protection de serviette hygiénique selon la Revendication 7, dans laquelle lesdites lignes adhésives ont une largeur de 1,27 cm (un demi pouce) ou inférieure afin de créer une barrière relativement infranchissable à la transmission des fluides d'origine corporelle au travers du centre de ladite protection.

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9. La protection de serviette hygiénique selon la Revendication 1, dans laquelle les bords longitudinaux dudit matériau de feuille recouvrent les côtés longitudinaux de ladite protection et les bords longitudinaux du côté faisant face au produit de protection sanitaire de ladite couche de matériau absorbant ; et dans laquelle lesdits moyens adhésifs comprennent deux lignes d'adhésif sensible à la pression situées le long des bords longitudinaux enveloppés dudit matériau de feuille sur le côté faisant face au produit de protection sanitaire de ladite couche de matériau absorbant.

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10. La protection de serviette hygiénique selon la Revendication 1, dans laquelle ledit matériau de feuille comprend un matériau thermo-liable et dans laquelle ladite couche mince comprend des fibres thermo-liables,
dans laquelle ladite feuille est liée thermiquement à ladite couche mince autour de la périphérie de ladite protections.

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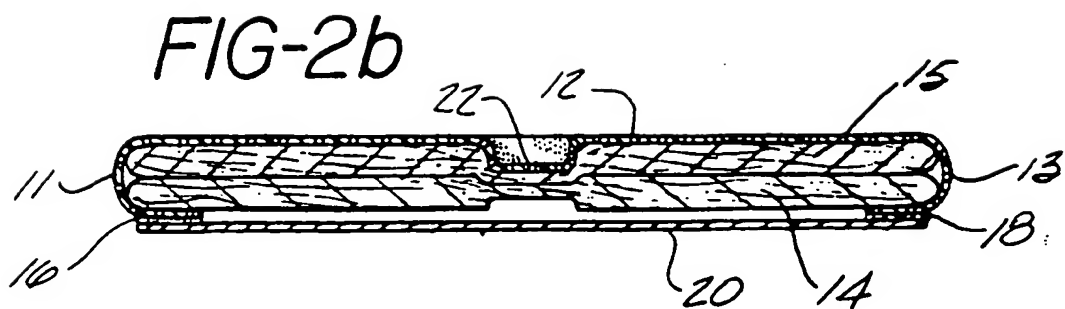
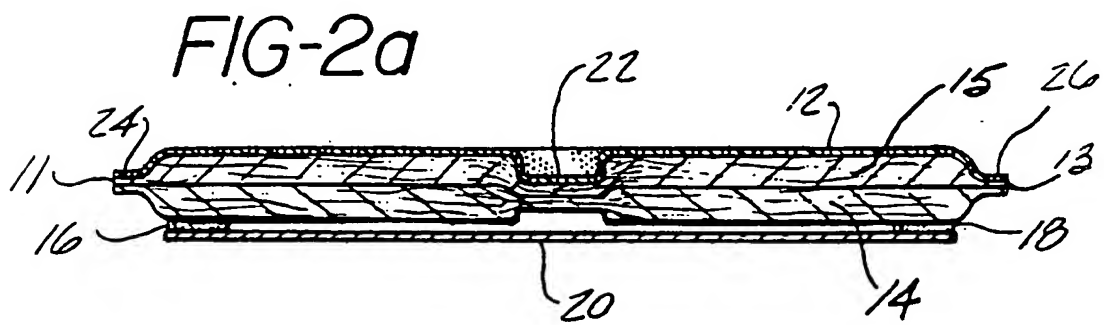
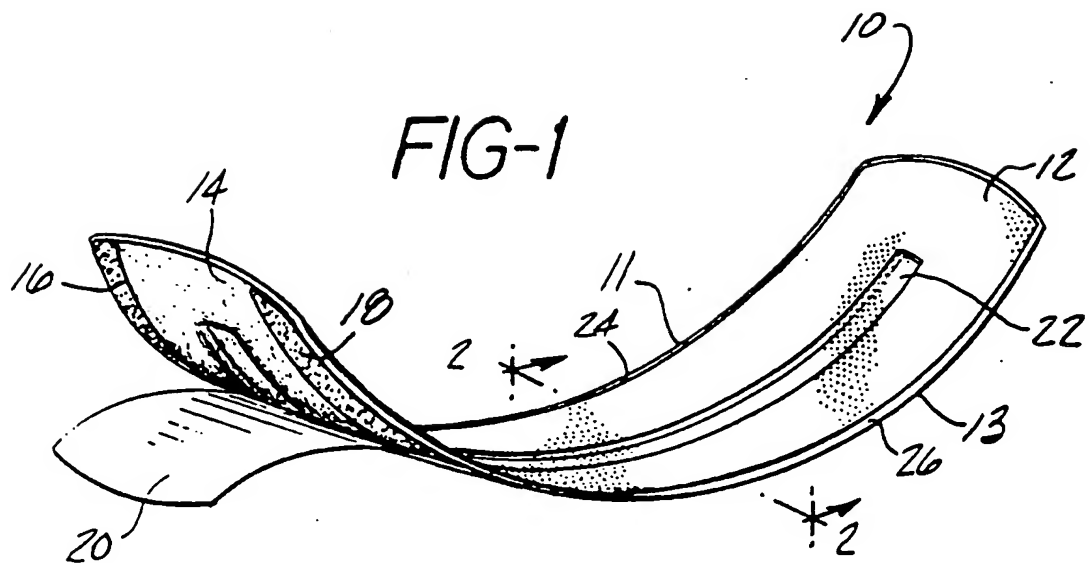


FIG-3a

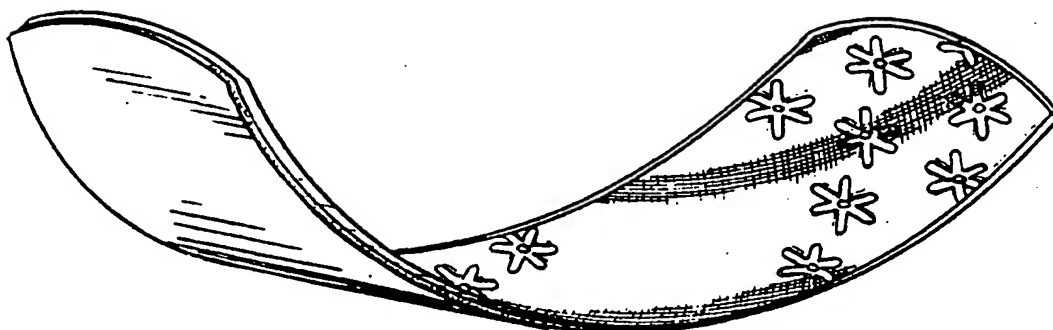


FIG-3b

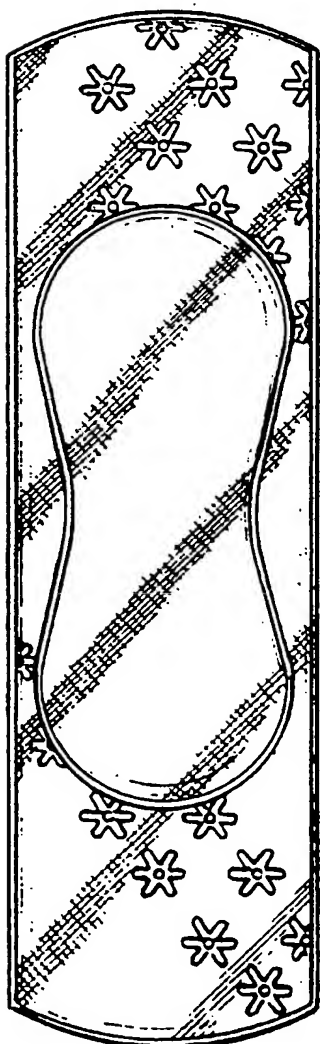


FIG-3c

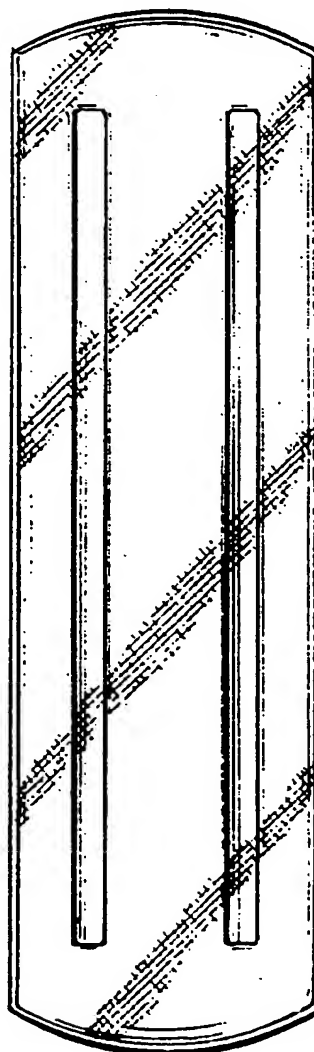
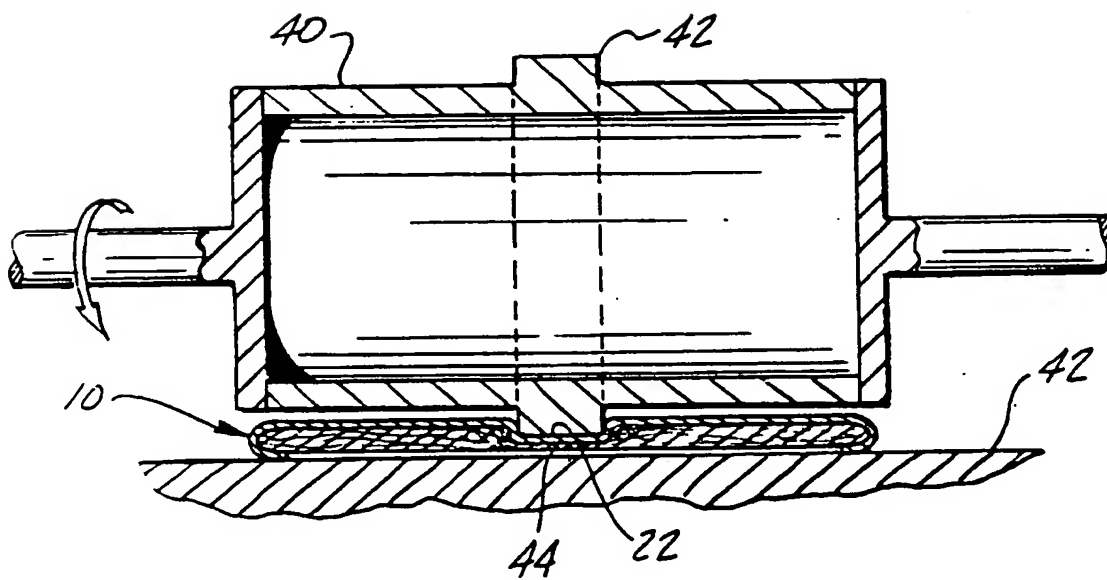


FIG-4



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